Living With Heart Disease...

An Introduction
Health is the nucleus of a “good life” and encompasses the normative patterns that make for a “normal life” of an individual. However, when illness and disease disrupt this normal life and bring discomfort, it also spells estrangement from his own subjective reality and loss of power at various levels for the individual. This subjective experience of disease and illness transforms his everyday life. The contextuality of health is the background in which illness and disease have to be understood and analyzed. Fundamentally, health can be broadly differentiated into: physiological, immunological, psychological and social. Each of these types of health conditions can be charted separately in an individual and linkages can be established among them.

Health can be defined as a “state of complete mental, physical and social well being and not merely the absence of disease and infirmity” (WHO, 1958). Health may be considered as absence of disease, which reflects some discontinuity with the everyday state of being of an individual. Thus, health means absence of disease or illness and illness would logically mean absence of health. In other words, health is reflected in the normal behavior of an individual while, illness suggests an abnormal state of being of an individual (Dingwall, 1976). Health is related to the typical expectations of particular sorts of individuals who share certain common health denominators. Such common denominators include a high level of physical activity, a well-fleshed body and an absence of pain. Any deviance from these norms can be termed as illness.

Generally illness is defined in terms of the ability or non-ability to carry out activities. In primitive societies, illness was defined as an autonomous force or “being” such as an evil spirit which attacked and settled in people’s bodies in order to cause them pain or death. During the middle ages, illness came to be defined as a punishment for sins, and care of the sick was
regarded as religious charity. But today, illness is viewed as a condition of suffering resulting from a disease i.e. an abnormal biological affliction or mental disorder with a cause, a characteristic train of symptoms and a method of treatment (Cockerham, 1989).

From the medical perspective, illness is a deviance from a biological norm of health and feelings of well-being. Health has been seen as a condition of equilibrium and illness as a disruption of a balanced state. “Health is that state of moral, mental and physical well-being which enables man to meet crisis in life with the utmost facility and grace” — Pericles, 495 – 429 BC

Sociologically, illness is generally viewed as a social rather than a biological event because of the subjective experience of suffering which results in individuals modifying their behavior patterns. Therefore, while a disease represents a medical entity that can be defined in terms of biological, physiological and psychological functioning, an illness can be regarded as a social entity definable in terms of social functioning (Suchman as cited by Cockerham, 1989). As Du Bois (1981), explains, health can be defined as the ability to function. This does not mean that healthy people are free from all health problems; it means that they can function to the point that they can do what they want to do.

Illness is undesirable, for the sick person and for the society. For the sick, it not only means discomfort and either permanent or temporary disruption of normal biological and social functioning but also entails a risk of economic hardship for the family (Cockerham, 1989; Croog et al, 1968). For the society, it means a reduction in the ability of a social group or organization to carry out its usual tasks and perform its normal social functions.

At the everyday level, social experiences of illness are equally shaped and constructed by cultural assumptions and social relationships (Turner,
Thus, a chronic illness of a parent can bring changes in many aspects of family organization, in emotional or interpersonal relationships, and in the energy that the family is able to direct towards the personal growth and development of its members (Stuifbergen, 1990). Ambiguities in fulfilling role tasks and the changing role requirements of other family members may greatly reduce the ability of both family and individuals to fulfill their functions for one another (Leventhal, Leventhal and Nguyen, 1985).

Illness however, is not solely a biological and physical phenomenon but an event that occurs in a social context and reflects the intimate association of the person with other human beings. Both the intra personal and interpersonal environments are sources of important events that affect the human organism relative to illness (King, 1963). It is this social context where the effects of illness through disease can be seen disrupting the normal social patterns of roles and relationships.

The concept of disease usually refers to some deviations from normal functioning that has undesirable consequences because it produces personal discomfort or adversely affects the individual’s future health status. On a practical everyday basis it is possible to identify and deal with disease processes, as persons often complain of pain and discomfort, and these complaints can then be investigated as to whether they fit a recognizable clinical pattern of disease. Assessment of the underlying condition producing the individual’s subjective distress usually leads to some attempt to manage the case, that is, to relieve pain and suffering and if possible to retard the disease process itself, if one can be identified.

Sociologists distinguish between illness as a social category and disease as a medical category. The latter refers to clinical conditions and pathologies, which are described, classified and published as a branch of medical expertise (Dictionary of sociology: 1995).
With the advancement in the field of medicine in the 21st Century, it is increasingly being realized that it is imperative to look at health issues that relate to the whole person, which extend well beyond singular causes of disease. Various social and psychological factors not only influence the form of disease but also have an effect on its duration, intensity of symptoms and disabilities (Albrecht and Levy, as cited by Cockerham, 1989). This is more so in case of chronic diseases, such as heart disease and cancer. It is not uncommon for an individual suffering from a chronic disease to feel perfectly normal, even when irreversible damage to organs and tissues has already occurred. Because of the irremediable damage done to the body by a chronic disease, individuals may be required to permanently change their style of living and modify their social relationships.

A chronic disease may lead to low life expectancy or a possibility of dying prematurely. It may also lead to behavioral dysfunctions; biomedical sciences typically refer to health outcomes in terms of mortality (death) and morbidity (dysfunction) (Kaplan, Coons and Anderson, 1992).

Although psychosocial influences may not be directly relevant to the occurrence of many diseases such as heart ailment and tuberculosis, they may influence the course of these conditions and resulting disability (Mechanic, 1968). Thus, the occurrence of disease frequently has important consequences for people’s psychosocial state of mind and for family life. One such prevalent disease that alters the individual’s social and psychological behavior is disease of the coronary arteries.

Coronary artery disease is an important chronic cardiac affliction, which occurs because of narrowing or blockage of the arteries, and vessels that provide oxygen and nutrients to the heart. This narrowing is caused by atherosclerosis – an accumulation of fatty materials on the inner linings of the coronary arteries. The resulting blockage restricts blood flow to the heart thus depriving the heart of oxygen and nutrients. In normal individuals, whenever
the requirements of the heart increase because of any physical or emotional activity, the blood supply to these arteries increases proportionately to meet the requirements. Healthy coronary arteries are clean, smooth and flexible and can expand to let more blood through when the heart works harder and needs more oxygen.

Atherosclerosis is a process, whereby deposition of fat in the form of cholesterol occurs under the inner surface of arteries including the coronaries. This deposition, called plaque is made of fatty substances, cholesterol, and waste products from the cells, calcium and fibrin, a stringy material that helps clot blood. The plaque formation process stimulates the cells of the artery wall to produce substances that accumulate in the inner layer. Fat builds up within these cells and around them and they form connective tissue and calcium. This progressing deposition causes a narrowing of their lumen thereby decreasing the blood flow through them. When this narrowing reaches a certain level i.e. 70% diameter, increased nutritional requirement of the heart during activity cannot be met by increasing blood supply through these narrowed arteries. The muscle of the heart that supplies nutrients by these narrowed vessels although is normally perfused at rest; it becomes ischemic (becomes deficient in nutrients) whenever the demands are increased. This ischemia manifests most commonly as pain or pressure in the chest (angina pectoris) on exertion. Occasionally these narrowed coronary arteries become abruptly blocked by either the progression of the atherosclerotic block, its disruption or a clot formation super added on it. This leads to the total disruption of blood supply to a segment of the heart muscle and if this disruption continues for a length of time (few hours), the muscle becomes dead and the process is called “Heart Attack” (Acute Myocardial Infarction or AMI).

The pain of acute myocardial infarction is variable in intensity; in most patients it is severe and in some instances intolerable. A patient who has suffered a heart attack presents with symptoms of sudden excruciating,
prolonged pain, usually lasting for more than 30 minutes and frequently for a number of hours. It may start very abruptly or increase progressively or be intermittent, coming and going over a number of hours. The discomfort is described as constricting, crushing, oppressing, or compressing; often the patient complains of a sensation of a heavy weight or a squeezing in the chest. Although the pain is typically described as choking, or heavy pain, it may also be characterized as a stabbing, knifelike, boring, or burning discomfort. The pain is generally retrosternal (mid chest) in location, spreading frequently to both sides of the anterior chest, with predilection for the left side. Often the pain radiates down the left arm, producing a tingling sensation in the left wrist, hand and fingers. Some patients note only a dull ache or numbness of the wrists in association with a severe substernal or precordial discomfort.

In some instances, the pain of acute myocardial infarction may begin in the epigastrium and stimulate a variety of abdominal disorders, a fact that often causes myocardial infarction to be misdiagnosed as ‘indigestion’. In other patients the discomfort of acute myocardial infarction radiates to the shoulders, upper extremities, neck and jaw, again favouring the left side. These symptoms may be accompanied with nausea and vomiting, which can occur in more than 50 percent of patients. When the pain of acute myocardial infarction is epigastric in location and is associated with nausea and vomiting, the clinical picture may easily be confused with that of gastritis or ulcer. Occasionally, a patient complains of diarrhoea or a violent urge to evacuate the bowels during the acute phase of myocardial infarction.

Other symptoms include feelings of profound weakness, dizziness, palpitations, cold perspiration, and a sense of impending doom. While this is the classical and perhaps the most common mode of presentation, there are great variations. In some cases, the dominant case may be syncope or breathlessness; pain may be slight or absent (Antman and Braunwald, 2001; Julien, 1995; Maeland and Havik 1989).
The pain of AMI may have disappeared by the time the physician first encounters the patient or the patient reaches the hospital. Opiates – in particular morphine, usually relieve the pain. Pain often disappears suddenly and completely when blood flow to the infarct territory is restored (Antman and Braunwald, 2001).

Although the death rate from AMI has declined by about 30 percent over the past decade, its development is still a fatal event in approximately one third of patients (Pedoe, 1999). In the elderly (>65yrs), acute myocardial infarction results in an increase in mortality compared with patients of younger age. Eighty percent of all deaths due to acute myocardial infarction occur in those 65 years of age or older (Wenger, 1992). A significant number of patients (about 50%) who suffer an acute myocardial infarction (heart attack) die within the first 30 minutes to one hour (Julien, 1995; Fulton et al., 1972), because of arrhythmias, but a large number survive to reach the hospital. These patients who reach the hospital are prone to two types of complications:

- Arrhythmias.
- Congestive Heart Failure.

In a substantial proportion of patients, once the pain has subsided, the subsequent course is uncomplicated. However, even in those who are apparently recovering, arrhythmias may occur, especially in the first six hours. Most of the arrhythmias that occur within the first twenty four hours after the onset have ceased to be a major problem with the availability of coronary care units, cardiac monitors, defibrillators, anti – arrhythmic drugs and temporary pacemakers. Congestive heart failure continues to be a major complication of acute heart attack producing dyspnoea in perhaps 20% of the patients. The severity of heart failure is directly proportional to the size of the myocardial damage sustained during the attack. Both the short-term outcome and long –
term physical disability and mortality is determined by this size of myocardial muscle damage (infarct size).

A large number of patients recover from acute myocardial infarction. The physical recovery depends on the extent of the myocardial damage and the extent of atherosclerotic disease in the coronary arteries. Most patients are able to achieve 8 to 9 METS (Metabolic equivalent system—a unit of energy that approximates 3.5 ml oxygen per kg. minute—the amount of oxygen required under basal conditions) of work after myocardial infarction (Eliot and Miles, 1975).

Acute myocardial infarction, more commonly known as ‘Heart Attack’, is the most important complication in the natural history of coronary artery disease. Coronary artery disease is one of the leading causes of death and disability in the Western World and now also in India, despite the decline noted over the past several years (Chaturvedi and Bhargava, 2007; Cable and Delany, 1996; Julien 1995; Branson et al, 1993; Kasliwal, 1993; Gotto and Farmer, 1988; Messerli, 1986; Alcocer and Reyes, 1986; and Blocker, 1986).

At the beginning of the 20th century, cardiovascular disease accounted for less than ten percent of all deaths worldwide. By the end of the century, cardiovascular disease accounted for nearly half of all deaths in the developed world and twenty five percent in the developing world (WHO 1999; Murray and Lopez 1996). It is expected that by 2020, cardiovascular disease will claim 25 million deaths annually and coronary heart disease will surpass infectious disease as the world’s number one cause of death and disability.

Before 1900, infectious diseases and malnutrition were the most common causes of death. These have been gradually supplanted in some (mostly developed) countries by chronic diseases such as cardiovascular disease and cancer. As this trend spreads and continues in developing
countries, cardiovascular disease will dominate as the major cause of death by 2020, accounting for one in every three deaths (Murray and Lopez, 1996).

This shift in the diseases that account for the lion’s share of mortality and morbidity is known as the epidemiological transition (Olshansky and Ault, 1986; Omran, 1974). The epidemiological transition never occurs in isolation but is tightly intertwined with changes in personal and collective wealth (economic transition), social structure (social transition), and demographics (demographic transition). Because the epidemiological transition is linked to the evolution of social and economic forces, it takes place at different rates around the world (Gaziznno, 2001).

The Indian scenario of coronary artery disease is not so clear and is clouded by the lack of large scale, well-defined studies (Kasliwal, 1993). But it is generally believed that the incidence of acute myocardial infarction has increased over the past few decades in our country (Gupta and Gupta, 1996). Moreover, patients in the relative younger age group are getting admitted with this diagnosis. It is affecting the young population in their most productive years, which has crippling effects on the family and the society. Cardiovascular diseases in India cause 3 million deaths per year, accounting for 25% of all mortality (Mukherjee, 1995). The exact cause or causes of this changing pattern is not obvious although a number of explanations have been advanced in India and abroad (Sharma and Ganguly, 2005; Bahl, Prabhakaran and Karthikeyan, 2001; Siwach, Singh, Sharma and katyal, 1998; Enas, Yusuf and Mehta, 1992; Usha, Shah and Sharma 1991; Kaul 1986). One plausible cause could lie in the country's epidemiological transition. This transition is characterized by rapid urbanization and its accompanying lifestyle changes—like addiction to smoking, alcohol, unhealthy diet, physical inactivity and increasing psychosocial ailments, and also by increasing longevity (Chaturvedi and Bhargava, 2007).
The lower incidence of atherosclerotic disease is expected in young patients, but an important difference has been seen in the risk factor pattern. The most important risk factor is - male gender, followed by tobacco consumption. Thus, an acquired and preventable risk factor like tobacco consumption is the chief culprit for myocardial infarction in young patients. In the Indian population, these two risk factors far outstrip others like obesity, hyperlipidemia and hypertension, which are more common in the West. The disease course is believed to be more severe and extensive, and to follow a more malignant course. Cross-sectional studies in India have also documented a prevalence of coronary artery disease, which is several-fold higher than that, in developed countries (Begom and Singh, 1995; Gupta et al, 1995; Singh and Niaz, 1995; Enas, Yusuf and Mehta 1992; Usha, Shah and Sharma, 1991; Chadha et al 1990; Kaul 1986; Garg et al 1984). Projections based on the Global Burden of Disease Study estimate that by the year 2020, the burden of atherothrombotic cardiovascular disease in India will surpass that in any other region in the world and the mortality attributable to coronary heart disease will continue to decrease (WHO, 2003; Murray and Lopez 1997).

The causes of coronary artery disease have not, as yet, been fully established. Over the past several decades, a substantial body of research has focused on risk factors for cardiovascular disease. A more health-conscious public has become aware of the insights generated by this research. Several risk factors have thus, been identified. It seems probable that the prevention or modification of these factors will reduce the risk or mitigate the effects of the disease (Desmond, 1995; Branson, 1993; Kasliwal, 1993; Hurst, 1990; Gotto and Farmer, 1988; Bret, 1986; Hopkins and Willams, 1986; Blocker, 1986; Paul, 1985). The genesis and perpetuation of factors such as unhealthy diet, smoking and blood pressure are inextricably linked to personal habits and behaviors. To the extent that personal values influence lifestyle, the promotion of changes in lifestyle must be grounded in ethical as well as medical principles.
Risk factors may be categorized according to differences in their etiology and predisposing characteristics. For example, smoking is a behavior that is learned by imitating others in the social milieu. Self-motivation and encouragement from others are the usual ways that the behavior is changed, although psychological or pharmacological therapies are used occasionally as adjuncts (Bret, 1986). Two types of risk factors for coronary artery disease have thus been identified.

- **Modifiable Risk Factors**: (i) Smoking (ii) Hypertension (iii) High Cholesterol (iv) Diabetes (v) Obesity (vi) Stress (vii) Sedentary Lifestyle

- **Non-Modifiable risk factors**: (i) Age (ii) Gender (iii) Family Predisposition

These Non-modifiable risk factors tend to be ignored because they cannot be changed. Nevertheless, they are particularly important risk factors because they help identify individuals with the highest risk and the greatest need for risk factor modification.

**Modifiable Risk Factors**

From an epidemiological perspective, a “risk factor” is a characteristic or feature of an individual or population that is present early in life and is associated with an increased risk of developing disease in future. The risk factor may be a behaviour e.g. smoking, an inherited trait e.g. family history, or a lab measurement e.g. cholesterol (Ridker, Genest, and Libby, 2001). Approximately 80 percent of coronary artery disease cases may be directly attributed to modifiable risk factors like smoking, hypertension, dyslipidemia, obesity and diabetes, which can be altered with lifestyle changes. The lifestyle decisions patients make each day become habitual behavioural patterns that influence their risk of developing health problems. Smoking, physical
inactivity, obesity and a diet high in saturated fats as well as an individual's response to stress are all associated with coronary artery disease (Robertson, Kayhko and Kekki, 2003).

**Smoking:** One risk factor about which there is no dispute is smoking. Smoking has been identified as the number one cause of preventable death in the US (Branson, 1993). It provides perhaps the strongest and most consistent correlation with the increased incidence of coronary artery disease and to be a major contributor to an increased risk of disease, generally in combination with other risk factors. Cigarettes are the most dangerous form of tobacco and the incidence of cardiovascular disease is directly proportional to the number of cigarettes smoked (Julien, 1995; Kasliwal, 1993; Hurst, 1990; Gotto and Farmer, 1988; Hopkins and Williams, 1986; Blocker, 1986; Paul, 1985; Jenkins et al, 1985). Nicotine in tobacco increases heart rate and blood pressure and produces constriction of blood vessels. Constriction of coronary arteries can cause heart attack even without significant coronary artery blockage. Smoking initiates propagates and aggravates premature atherosclerosis (Wenger and Schlant, 1994). The risk of coronary artery disease in smokers is two to three times more than that in non-smokers and is related to the number of cigarettes smoked (Sharpe et al, 1985; Pooling Project Research Group 1987). Smokers are also at risk of dying from sudden heart attack.

**Hypertension:** Hypertension or high blood pressure in common language, is defined as a systolic blood pressure greater than or equal to 140 mmHg and or a diastolic blood pressure greater than or equal to 90 mmHg. Hypertension makes the heart work harder and weakens it over time. Hypertension can lead to thickening and loss of elasticity and flexibility of arterial walls. It also weakens the arteries (Wenger and Schlant, 1994). The relation of hypertension with coronary artery disease is well established (Julien, 1995; Kasliwal, 1993; Hurst, 1990; Gotto and Farmer, 1988; Hopkins and Williams, 1986; Blocker, 1986; Paul, 1985; Jenkins et al, 1985). The risk increases if
hypertension is present along with other risk factors, such as hypercholesterolemia, smoking, sedentary lifestyle, diabetes, obesity (Gotto and Farmer, 1988; Chadha et al, 1993; Kasliwal, 1993; Miller NH et al 1990). Hypertension increases with age and in those with a positive family history of hypertension.

**High Cholesterol:** Cholesterol, a soft, waxy substance comes from foods such as meat, eggs and other animal products and is produced in the liver. Cholesterol and phospholipids are essential components of cellular membranes and are necessary for normal bodily functions, including the transport and storage of body energy and the production of steroid hormones and bile acids. No study in the risk factors for coronary artery disease story has been longer in words and argument or more critically reviewed than that devoted to the diet – blood cholesterol – coronary artery disease connection. It has been one of the most extensively studied risk factor for the development of coronary artery disease. Patients with cholesterol levels equal to or greater than 240 mg/dl are classified as having ‘high’ serum cholesterol. The risk of developing coronary artery disease in individuals with high cholesterol at least doubles when compared with levels less than 200 mg/dl established (Julien, 1995; Kasliwal, 1993; Hurst, 1990; Gotto and Farmer, 1988; Anderson Castelli and Levy, 1987; Hopkins and Williams, 1986; Blocker, 1986; Paul 1985. The most important dietary component leading to hypercholestrolemia is saturated fat, which is converted into cholesterol after absorption. Mono – unsaturated fats, such as olive oil and poly – unsaturated fats as in some varieties of margarine, lower cholesterol levels, particularly if they are used to replace saturated fats.

**Diabetes:** A person is said to be diabetic on the basis of his fasting blood glucose of over 120 mg/dl (Garcia, Mc Namara and Gordon, 1976). Glycemic control, which deteriorates over time in a diabetic person, is necessary to prevent long-term complications. The number one complication of diabetes is atherosclerotic disease. Diabetes is known to be associated with increased
incidence of myocardial infarction (Kasliwal, 1993; Hurst, 1990; Wenger and Schlant, 1990; Gotto and Farmer, 1988; Hopkins and Williams, 1986; Blocker, 1986; Paul 1985). It may act as an initiator and a promoter of atherosclerosis, which is the most frequent complication of diabetes (Hopkins and Williams, 1981). Atherosclerosis occurs early, is diffused and is extensive. Diabetes is said to double the occurrence of coronary disease in men and triples to quadruples the incidence in women, particularly prior to age 50 (Kasliwal, 1993; Miller, 1988; Blocker, 1986).

Obesity: “In earlier times, starvation consigned languishing bodies to death; now, on the other hand, prosperity plunges them into the grave” (Lucretius, ca. 50 BC). Obesity, defined as the excessive storage of energy in the form of fat, has adverse effects on health (National Institute of Health Consensus Development Panel, 1985. Excess body weight increases the strain on the heart and increases the risk of developing coronary artery disease even if no other risk factors are present. (Kasliwal, 1993). The association between obesity and premature atherosclerotic heart disease, increased angina and increased sudden mortality particularly by sudden death is well known. The predominant rationale for control of obesity is that obesity adversely effects the risk profile and appears to accentuate atherosclerosis by predisposing to hypertension, impaired glucose tolerance, hyperlipidemia etc. The degree of obesity may be an independent risk factor, especially in women (Hubert et al, 1983), as well as in older patients (Harris T et al, 1988).

Stress: Throughout history, philosophers have debated over the interaction of mind and body, but only in the last decade have psychiatrists and other health professionals begun to scrutinize how stressful life events may precipitate or contribute to the onset of an illness (Miller, 1988). Stress is described as the mental and physical reaction to life’s challenges. The single common denominator for the development of stress is a significant change in life patterns such as death of a loved one or a change of job. Chronic or severe emotional stress can result in multitude of medical and psychological
disorders. Behavioral risk factors may offer added predictive value for coronary heart disease. Stressful life events, work overload with job dissatisfaction, limited social support, and excessive social mobility have also been associated with increased coronary risk. Stress can produce chronic elevation of heart rate and blood pressure leading to myocardial infarction (Kasliwal, 1993; Hurst, 1990; Wenger and Schlant, 1990; Gotto and Farmer, 1988; Hopkins and Williams, 1986; Blocker, 1986; Paul 1985).

Sedentary Lifestyle: Nakovich Ambodick, a Russian physician, in 1786 described the pathology of physical inactivity when he wrote, ‘A body without motion deteriorates like still water’. The role of physical activity independently in preventing coronary disease and in decreasing mortality after myocardial infarction remains controversial. Nevertheless, physical activity is known to be important in maintaining body weight thus avoiding obesity, in lowering blood pressure and cholesterol and raised blood glucose levels, thus reducing the risk of coronary artery disease. The level of physical activity required for protection against coronary artery disease has also been debated upon. Physical fitness rather than physical activity pattern has been described as protective (Oberman A 1985). Physical inactivity may be a less powerful risk factor than an elevated serum cholesterol, hypertension, or cigarette smoking.

Non - Modifiable Risk Factors

Although age, gender and heredity characteristics are unalterable, they indicate potential high-risk individuals for whom early risk assessment and appropriate intervention may be warranted.

Age: Age is of course, the strongest cardiovascular risk factor. The chance of having a myocardial infarction increases progressively after early middle age. However, an increased number of younger patients are getting admitted with the diagnoses of myocardial infarction.
Gender: Perhaps one of the most documented and most consistent risk factors for coronary atherosclerosis is among men. Females have a decreased incidence because of a protective function exerted by estrogen. After menopause, females are equally at risk for having a heart attack.

Family Predisposition: It is common for coronary disease to occur in several members of the same family. To some extent, this can be attributed to the genetic inheritance of hyperlipidemia and hypertension, but shared habits such as cigarette smoking may play a part. Individuals, whose parents suffer from coronary artery disease at a younger age, are more likely to develop it at some point of time during their lifetime.

The experience of a heart attack is typically sudden, frequently without forewarning, often dramatic, usually distressing and almost always life-threatening. Life crisis inevitably produces emotional consequences. The experience of acute myocardial infarction is a major crisis for most individuals and, in the short term, the most typically observed response to this event is emotional distress in one of its various forms.

Myocardial infarction assumes different cognitive meanings for different people (Byrne and Whyte, 1978). However, the observable characteristics of the illness experience are essentially invariant. First, it is an experience that, in some individuals, initiates the nearness of death (Cay, Vetter, Phillip and Dugard, 1972). Second, the onset of symptoms heralds the beginning of a potentially long period of recovery and rehabilitation and implies for some, the possibility of protracted disability (Finlayson and McEwen, 1977). Thirdly, the acute phase of myocardial infarction may bring a period of pain and physical discomfort and an unavoidable dependence on the attention of others (Byrne and Whyte, 1979).

The critical nature and the widespread prevalence of coronary artery disease have brought to the fore, the necessity to rehabilitate individuals
completely, after an AMI. With the mortality from AMI decreasing progressively and more number of individuals being discharged alive, the responsibility of providing the individuals with means to facilitate his/her rehabilitation becomes even greater. (Goble and Worcester, 1999; Byrne, 1990; Maeland and Havik 1989; ISIS 2, 1988) Cardiac rehabilitation has become an important aspect of management in patients with coronary artery disease, especially after an acute myocardial infarction.

Cardiac rehabilitation has been defined by the World Health organization as: "the sum of activities required to influence favourably the underlying cause of disease, as well as to ensure the patients the best possible physical, mental and social conditions so that they may, by their own efforts, preserve, or resume when lost, as normal a place as possible in the life of the community" (WHO, 1993).

Cardiac rehabilitation has also been defined as “the combined and coordinated use of medical, psycho-social, educational, vocational and physical measures to facilitate return to an active and satisfying lifestyle (National Heart Foundation of Australia, 1993). A yet another manner in which cardiac rehabilitation has been defined is: " the sum of interventions required to ensure the best possible physical, psychological and social conditions so that patients with chronic disease may, by their own efforts, preserve or resume their proper place in society (Gohlke and Gohlke – Barwolf, 1998).

Patients in the age group of 30-50 years constitute majority of the working force. In addition, they hold and perform important familial and psycho-social responsibilities. It is expected that the patients on recovery after an acute myocardial infarction shall be able to resume their vocational, familial and psycho – social responsibilities within the limitations of their physical disability. Failure to achieve this may result in significant loss of work force and psycho – social maladjustment. All rehabilitation programmes have been developed to achieve these goals. The goal of cardiac rehabilitation is
extending and improving the quality of life by restoring and maintaining the patient at his or her optimal level of physiological, psychological, emotional, vocational, social and economic usefulness, compatible with the patient's functional capacity and role in society (Sharma and Ganguly, 2005; Bethell, 2000; Gohlke and Gohlke-Barwolf, 1998; Thompson, 1995; Tavazzi et al, 1992; Oberman, 1988; McKool and Nelson, 1985; WHO, 1981; McLane, Krop and Mehta, 1980; Wenger, 1979).

The physical brunt of AMI is restricted within the individual who suffers it, but the psychological impact extends well beyond the individual as families suffer too. Often the spouse manifests the greatest distress and the partner's emotional response may have a major influence on the eventual outcome. The pre-existing marital and family relationships can be seen as an important determinant of psychological recovery of the individual.

Theoretical Perspective

Illness and Disease are not predominantly biological and physical phenomenon. It is an event that occurs in a socio-cultural context and reflects the intimate association of the individual with the group. Both the intra personal and interpersonal environments are sources of important events that affect the human organism relative to illness (King, 1963).

Illness is a universal phenomenon, occurring in all societies, it forces temporary disruption of regular patterns of social relationships. Fulfillment of normal role responsibilities by the sick person is often impossible and often the role responsibilities of the patient's family cannot be carried out. Job, home, and community, the major sectors of social roles, are all affected to varying degrees by illness. At the same time, psychological balance is threatened by illness. Anxiety can be aroused – often deep and abiding anxiety, depression may occur, and patterns of emotional response may be expressed that are not characteristic of mature adult behavior. Illness
provides for an opportunity for many ‘childish’ responses. At the same time, because it is an experience of strong emotional significance, illness can be the framework for the expression of great courage of love, and of faith. As a social and psychological event, illness is rarely uneventful, usually stressful and occasionally most disruptive.

In the process of seeking medical care, two individuals having almost the same symptoms may behave quite differently. One person may become concerned and seek medical treatment, while another person may ignore the symptoms completely (Cockerham, 1989). Although there is no specific explanation for such behavior, the defense of denial has been used as a partial explanation (Hackett and Cassem, 1969). Denial has been cited as the most common human reaction to situations of life stress and is defined as the conscious or unconscious repudiation of part or all of the total available meaning of an event in order to allay fear, anxiety, or other unpleasant effects (Hamburg et al., 1974; Weisman and Hackett, 1961). At its simplest, it is the negation of personal danger. Displacement is another form of denial and rationalization is still another. The list of variations continues, but the goal is the same – to reduce or eliminate the threat. Studies of denial before hospitalization have demonstrated that high levels of denial can have negative effects by leading to a delay in seeking treatment (Shaw et al., 1985; Gentry, Foster and Haney, 1972).

Considering the ubiquitous nature of illness in human societies, it is not surprising that a special role should develop for the sick person, including rather clearly defined expectations for behavior on the part of the patient and reciprocal responsibilities between the one who is sick and those who interact with him. Behavior of the sick person therefore, is constrained or limited by the role expectations of the society in which he lives.
Socio-Psychological Models of Health Care Utilization

1) Health Behavior and Health Belief Model

Health behavior is the activity undertaken by a person who believes himself/herself to be healthy for the purpose of preventing disease. Irvin Rosenstock (1966) and his colleagues Marshall (1974) propounded this model. This model suggests that preventive action taken by an individual to avoid disease is due to that particular individual’s perception that he / she is personally susceptible and that the occurrence of the disease would have at least some severe personal implications. The assumption in this model is that by taking a particular action, susceptibility would be reduced, or if the disease occurred, severity would be reduced. Despite recognition that action is necessary and the presence of energy to take that action, a person may be sufficiently motivated to do something. Therefore, Rosenstock believed that a stimulus in the form of action cure was required to “trigger” the appropriate behavior. Such stimulus could be internal (perception of bodily status) or external (interpersonal interactions, communications or personal knowledge about someone effected by similar health problem).

Health belief model has its limitations as it has been applied mostly to preventive situations in which the behavior studied is voluntary. The merit of the model is that even when an individual recognizes personal susceptibility, he / she may not take action unless he / she also perceives that being ill will result in serious difficulty. Nevertheless, this model has demonstrated considerable utility in the study of health behavior and may yet be modified to account for illness behavior as well.

2. Illness Behavior

Illness behavior pertains to people who perceive themselves as being sick. Mechanic and Volkart (1961) describe illness behavior as “the way in
which symptoms are perceived, evaluated and acted upon by a person who recognizes some pain, discomfort or other sign of organic malfunction. Several studies have suggested that laypersons generally define illness in terms of the ability or the non-ability to carry out activities. Dorian Apple (1960) noted that people’s judgment about whether a person is sick or not was based upon the recent experience or behavior, and the degree to which it interfered with normal activities.

Barbara Baumann (1961) found that laypersons distinguished between health states according to three major factors:

- Feelings of well-being / Feeling bad
- Absence of symptoms / presence of symptoms
- Being able to perform normal usual activities / not being able to engage in usual activities.

Andrew Twaddle (1969) in his study identified three signs of illness:

- The occurrence of pain and weakness
- Incapacity for normal role performance
- Other bodily changes considered important because of their presumed implications for future activities.

Mechanic (1978) has formulated a general theory of help-seeking. According to him, there are 10 determinants based upon which, a person seeks medical care:

- Visibility and recognition of symptoms
- The extent to which symptoms are perceived as dangerous
- The extent to which symptoms disrupt family, work, and other social activities
- The frequency and persistence of symptoms
- Amount of tolerance for the symptoms
• Available information, knowledge and cultural assumptions
• Basic needs that lead to denial
• Other needs competing with illness responses
• Competing interpretations that can be given to the symptoms once they are recognized and
• Availability of treatment resources, physical proximity and psychological and financial costs of taking action.

According to Mechanic, these determinants operate at the other-defined level, which is the process by which other people attempt to define an individual’s symptoms as illness and make that person aware of those symptoms. The other level, the self-defined level is that by which the individual defines his or her own symptoms. The backdrop of this theory is that illness behaviour is a culturally and socially learned response. A person responds to symptoms according to his / her meanings of the situation. Although this theory provides a plausible explanation of the decision – making process leading up to contacting a physician, it does not explain what happens after the initial contact is made (Wolinsky, 1980). It also does not account for health behaviour in which healthy persons seek a physician for preventive care. The validity of this theory has also not been tested.

Suchman's (1965) description of stages of illness experience provides insight into the sequence of events involving a person’s behaviour after the initial contact is made. According to him, a person can pass through 5 different stages once he becomes ill: --

**The symptom experience:** the illness experience begins with the symptom stage, in which the individual is made to decide whether the symptoms are indicative of a health disorder, which needs attention.
The assumption of sick role: if the individual recognizes symptoms as indicative of an illness, he may relinquish normal social obligations and adopts the sick role.

Medical care contact: on adopting the sick role, if a person seeks medical care, he enters Suchman’s third stage of illness behaviour. On being contacted, the physician may confirm or deny the illness experience.

The dependant patient role: if treatment is given for the illness, the individual may complete the treatment or else enjoy the secondary gains of being ill such as taking time off work, and do not seriously try to get well.

Recovery and rehabilitation: if the patient completes the prescribed treatment, he may relinquish the sick role and resume normal social roles. This may not happen as in the case of chronic illness or even if physically well, he may choose to mangle.

Although an illness experience may not involve all the above-mentioned stages, as a sick person can get out of the sick role through denial, the significance of this model is that it requires the sick person to take decision and action at every stage. But more emphasis should be made in the case of health care, on the belief that a cure can be obtained and that the cost in terms of time, money, effort and energy is worth the total expenditure. This is important so that a person does not relinquish the sick role once the symptoms disappear, as it is equally important to complete the treatment as per the medical advice.

3. Labeling Theory

Eliot Freidson (1970) is of the view that illness as deviant behavior is relative and must be seen as such; this is the perspective of labeling theory. Labeling theory as propounded by Howard Becker (1973) is based upon the
concept that what is regarded as deviant behavior by one person or social group may not be so regarded by other by other persons or group who make norms. The variable in understanding deviance is the social audience because it is the audience, which determines what is and what is not deviant behavior.

Legitimacy is considered to be the main indicator for distinguishing between sick roles (Friedson, 1970). According to Friedson, there are three types of legitimacy in illness states: --

(i) **Conditional legitimacy** is where the deviants are temporarily exempted from normal role obligations and are given extra privileges on the condition that they will seek help to rid themselves of their deviance.

(ii) **Unconditional legitimacy** is where the deviants are permanently exempted from normal role obligations and are granted additional privileges on the basis of their deviance.

(iii) **Illegitimacy** is where the deviants are exempted from some normal role obligations because of their deviance. They hardly gain any privileges but are given an additional handicap / stigma instead.

Labeling theory implies that while sickness maybe a biological state existing independently of human knowledge, illness is a social state created and formed by human perception. A mere diagnosis of illness by a physician often can and does change the sick person’s behaviour (Wenger, 1988). Thus, illness by this point of view is seen as a condition created by human beings in accordance with their understanding of the situation.

The merit of this concept is that it refers to illness as a socially created label and that there are different types of illness. On the other hand, this model fails to explain the differences in the way people define themselves as
being sick and the need of seeking professional medical care in order to get well.

4. The Sick Role

Once the individual seeks medical care after feeling the need to do so, he may or may not be declared as a sick person by the physician. On being declared a sick person his behavior may change. He may shun his normal obligations (social activities) and adopt the illness behavior (Wenger, 1988; Parsons, 1951).

Talcott Parsons introduced the sociological view of illness as deviant behavior in the concept of “sick role” in his book, The Social System (Parsons, 1951). He became concerned with the personality of the individual with the relation to health and illness while studying the social structure in which an individual’s personality develops and processes which determine a structure of roles carried out by the individual (Parsons, 1964).

In this book, The Social System (1951), Talcott Parsons has developed a theoretical perspective for sociology which has become known as “structural–functionalism”. Its basic idea is that observable social arrangements, as ‘normative structures’, can be analyzed in terms of their contributions to the continuation of the overall social unit, the social system, of which they are a part, i.e. their social functions. For a society, a certain level of health of its population is a basic necessity, a “functional prerequisite”. He conceived of the roles of the physician and that of the patient as complimentary normative structures (Have, 1996).

According to him, the basic problem of health and illness is one of maintaining members’ capacity to function in their ordinary membership roles, i.e. to contribute to the overall societal functioning in the ways conceived for the particular positions in which they find themselves. These capacities have
not only physical aspects, but also motivational ones, which in Parsons’ view are intimately related. For the social system, illness is not just 'external danger', but also an integral part of the social equilibrium itself. The basic problem for modern society, as Parsons sees it, is a problem of the motivation of individuals to perform in roles. “Illness may be treated as one mode of response to social pressures, among other things, as one way of evading social responsibilities”.

Parsons (1964; 1951) has defined the demands and expectations of the sick role in western societies particularly the United States. There is a disturbance of the capacity of the individual to perform ordinary task or roles in his social group, an incapacity which is ‘not his fault’, not an act of conscious decision. Furthermore, the incapacity must be reversed by some kind of therapeutic process, natural or man-made. The ill person is exempted from his normal role and task obligations, varying in accordance with the nature and degree his illness. Although being ill and being exempted from role responsibilities is a ‘legitimate’ state in a social sense, this legitimacy is only partial and conditional.

Illness is basically undesirable, socially speaking, and the person who is in the sick role has an obligation to try to get well and to co-operate with other people in that effort. Both the ill person and those responsible for his welfare have an obligation to seek technically competent help for the therapeutic process. In our society, the principle source of such help lies in organized medicine.

Parsons (1951) states that since the sick are unable to take care of themselves, and being sick is an undesirable state, it becomes essential for them to seek medical advice and co-operate with the physician in order to get well. According to him, illness is dysfunctional i.e. as an individual’s sick role
is legitimized and dependency permitted, he is permitted passive withdrawal from normal activities and responsibilities which Parsons termed as deviance legitimized (Parsons, 1964). Parsons insists that illness is dysfunctional because it represents a mode of response to social pressure that permits the evasion of social responsibilities. A person may desire to retain the sick role more or less permanently because of what Parsons calls a 'secondary gain', which is the exemption from normal obligations and the gaining of other privileges commonly accorded to the sick. Hence, medical practice becomes a mechanism by which a social system seeks to control the illness of its deviant sick by returning them to as normal a state of functioning as possible. Thus, role of a sick person in our society bears four distinguishing characteristics (Parson, 1951):

1. **The sick person is exempt from ‘normal’ social roles:** Exemption from normal role performance is based upon the individual's incapacity to function normally because of his illness. This exemption is relative to the nature and severity of illness, which is legitimized by the physician as an authority in order to protect the society against malingering.

2. **The sick person is not responsible for his or her condition:** An individual’s condition is thought to be beyond his or her own control. The incapacitating condition of the body needs to be changed and some therapeutic process is necessary for recovery.

3. **The sick person should try to get well.** Based on the assumption that exemption from normal responsibilities is temporary and that being sick is inherently undesirable, the sick person thus, has an obligation to get well.
4. The sick person should seek medically competent help and co-operate with the physician.

A sick person's obligation to get well, further involves another obligation to seek medically competent help from a physician and co-operate with him.

As a corollary to this, the sick role has certain rights and duties. The rights include exemptions from normal social responsibilities and the recognition that the ill person is not to be blamed for his state. The obligations are a desire to get well and to seek medically competent help to achieve this end.

The more prominent components of the resulting sick-role behavior include an increase in work absenteeism (disability days), a decrease in marital and home satisfaction, a greater worry about health status, a reduced feeling of personal strength and independence, and a resultant reduction in the general activities of daily living (Polk et al, 1984; Haynes et al, 1978; Haynes et al, 1977). An adverse effect on economic status has also been described (Johnston et al, 1984).

Although Parson's sick role has widely been used for research, it has been criticized by various sociologists on the basis, that it has not been empirically validated. And also because it has,

- Failed to explain the variation within illness behaviour
- Failed to apply to chronic illness
- Failed to account for the variety of settings and situations effecting the patient
- Also failed to explain the behaviour of lower-class patients (Cockerham, 1989).
Although this theory is an insufficient explanation of all illness behaviour, it does enable us to understand and comprehend sick role behaviour patterns. If the limitations of Parson’s sick-role theory are realized, the model can be applied as an ideal-type with which various forms of illness behaviour can be contrasted or it can be used in expanding the concept to account for conditions generally common to most illness situations (Cockerham, 1989). For the present study, Parsons’ theory will be used as a theoretical tool of analysis and interpretation.

**Review of Literature**

Research provides intensive, purposeful and multi-dimensional insights into specific problems for obtaining an in depth understanding and knowledge. Existing literature, which includes numerous studies, carried out on problems related to heart disease, quality of life, rehabilitation and other related issues have been reviewed at length. This is the background in which the researcher developed an understanding of the existing research and formulated parameters for the present empirical study. A brief review of literature is being presented below:

Physical or mental suffering garners the label of sickness when others—generally the physicians—acknowledge that it impairs social functioning. In the field of medical sociology, “disease” describes biomedical changes in health and “illness” refers to the subjective experience of disease, while “sickness” encompasses the social dimensions of illness—how being ill affects one’s role in society (Twaddle, 1979).

Heart disease tends to occur earlier in life in Indians than in other ethnic groups. It is believed to be more severe and extensive and to follow a more malignant course (Bahl, Prabhakaran and Karthikeyan, 2001; Enas, Yusuf and Mehta, 1992). Cross sectional studies in India have also
documented a prevalence of heart disease which is several folds higher than that in developed countries (Mitra, 2004; Padmavati, 2001; Begom and Singh, 1995; Singh and Niaz, 1995; Gupta and Malhotra, 1975; Sarvotham and Berry, 1968; Padmavati, 1962; Mathur, 1960).

Human nature sometimes divests itself in doing things counterproductive to survival. Thus some of the acquired habits and lifestyle patterns which individuals enjoy and indulge in, may affect their health and sometimes lead to illness and disease. Smoking is one such vice, which needs to be curtailed in order to prevent lifestyle disease like heart disease, oral cancer and lung cancer. Cigarette smoking is often cited as a single, most preventable cause of death. It is the main cause of almost 90% of deaths from lung cancer, about 80% deaths from COPD and about 20% of deaths from heart disease. About 6,30,000 deaths in India, are attributed to tobacco use (Bhatia, Padda and Singh 2001). Greater prevalence of certain coronary risk factors like smoking, diabetes, hyperlipidemia are found to be more among the illiterate and less literate individuals belonging to low socio economic classes. Hypertension and obesity is less among the lower classes (Gupta et al, 2003). These findings are similar to studies from North America and Western Europe (Kaplan, 1993).

Apart from causing death and disability, smoking also has economic and environmental costs, which impede development and imperil the future of people who smoke. Episodes of ill health, costs of healthcare, and premature death are frequently cited by poor people as their gravest concerns, and as the precipitating cause that pushes families into poverty. Smoking prevalence tends to be higher among men with less education and lower incomes, so they bear a greater health risk. Also, the opportunity cost of money spent on cigarettes is obviously higher for people living on low incomes (WHO Report updated March 2002).

Smoking is an important risk factor for myocardial infarction (Rastogi et al, 2005; Piegas et al, 2003; Pais, Fay and Yusuf, 2001), Despite knowing this
fact, many cardiac patients continue to smoke, although this greatly increases their risk of health complications. The prognosis of patients with established coronary artery disease improves greatly with the cessation of smoking. Smoking cessation after an acute myocardial infarction has been associated with a fifty percent reduction in mortality (van Berkel, van der Vlugt and Boersma, 2000; Dornelas et al, 2000; Wilhelmson, 1998). Hospitalization for coronary artery disease provides an important opportunity to intervene with smokers when their motivation to quit is high (Reid, Pipe and Quinlan, 2006). Cigarette smoking and exposure to secondhand smoke cause coronary heart disease. Banning smoking in public places is associated with significant reductions in the incidence of acute myocardial infarction (Reid, Quinlan, Riley and Pipe, 2007).

A study, done by Bhatia, Padda and Singh (2001), among medical students of Govt. Medical College, Amritsar, studied their smoking behaviour, knowledge and opinion. Forty six percent of smokers had started smoking before entering the medical college. Curiosity, peer pressure, stress and assertion of independence were the main reasons given for starting smoking which had however continued mainly to obtain stimulating and / or relaxing effects, to lessen tensions / worries and to concentrate.

Budd and Preston (2001) studied college student’s attitudes and beliefs about the consequences of smoking. Some young people used smoking as a strategy for dealing with stressful situations, weight control, and lack of self-confidence. Smokers’ answers to the questionnaire given indicated that they perceived emotional benefits, self-confidence, and body image as a positive consequence of their smoking behaviour. Peer influence to start smoking is strongest among adolescents, who are seeking friendships within various groups and may see smoking as a vehicle for entering into desired friendships (Aloise-Young, Graham and Hansen 1994).
Smoking behaviour has been related to level of education and employment status. Arnold *et al* (2001) interviewed 600 pregnant women regarding smoking practices, tobacco knowledge and attitudes. Knowledge about the effects of smoking and concern about the health effect of smoking on their baby varied significantly with their reading level. Participants with higher reading levels had more knowledge and greater concern. Similarly, Yach and Joubert (1988) found that there was a relationship between employment status and smoking, as well as between level of education and smoking in a study done among people in Mamre.

Physically, smoking is a hard habit to break and psychologically, quitting smoking may even be tougher. The need to help young people break their smoking habit has emerged as a public health priority with the recognition that early smoking predicts greater difficulty in quitting and greater probability of damage to health in adulthood. Smoking cessation for adults, despite the more extensive research, remains an unresolved issue for thousands of smokers who have tried but failed to quit. Inequalities in cigarette smoking prevalence exist, with smokers more likely to be poor and less educated. Higher socioeconomic status (SES) is associated with higher quit rates (Harwood *et al*, 2007).

An increase in body weight after stopping smoking was not associated with any increase in mortality among post – infarct patients (Wilhelmson, 1998). Some form of counseling or social support is needed to help patients quit this habit. A hospital – based smoking cessation program consisting of inpatient counseling and telephone follow – up substantially increased smoking abstinence one year after discharge in patients post myocardial infarction. Patients with a low self – efficacy were found to be almost certain to relapse without intervention (Dornelas *et al*, 2000).

Social isolation was associated with persisting / continuing smoking at three months post myocardial infarction among patients in a longitudinal study by (van Berkel, van der Vlugt and Boersma, 2000). Smoking continuation was
also associated with younger age, shorter hospital stays, less complicated infarctions and also a greater number of cigarettes smoked at baseline. On the other hand, quitters had had a more serious myocardial infarction, and had a lower displeasure score. Also, quitters received more support from their social environment. Thus, it was advocated that special support should be offered to smokers who suffer a myocardial infarction, especially those whose psycho-social profiles are less favourable.

This observation was also made by van Berkel et al., (1999), in an earlier study. They found that advice to stop smoking motivates patients to seek help and to attempt to stop smoking. There has been a need to determine various factors affecting cigarette-smoking status after development of coronary artery disease in order to affectively counsel and educate patients about quitting smoking. Bolman and de Vries (1988) explored possibilities for health education among cardiac inpatients. Patients in different motivational phases differed in their psycho-social determinants. Attitudes and social support were most positive among smokers in contemplation and among internally motivated patients. Externally motivated patients had less positive attitudes, less social support and lower self-efficacy expectations.

Huijbrechts et al., (1996) studied the relationship between personality characteristics and spontaneous modification of smoking habits among patients, five months after their first myocardial infarction. Smoking appeared to have decreased after their myocardial infarction. Those who persisted smoking, scored high on state-anxiety and depression level. Young persistent smokers had a higher level of depression and elderly persistent smokers were highly anxious and had low levels of somatization.

In a study by Ockene et al., (1985), increasing age and recurrent coronary event were major determinants of smoking cessation among patients. Patients hospitalized for a myocardial infarction or coronary artery bypass graft, who had only recently quit smoking, were found to be
susceptible to relapse to smoking on the basis of their attitudes towards the risk of smoking to their health. They also had a reduced social pressure from their significant others not to smoke keeping their myocardial infarction in mind (Aish et al, 1991). Patients who continue to smoke after AMI are at greater risk for death than patients who quit smoking. Cessation of smoking benefits the long-term prognosis in patients with AMI (Kinjo et al, 2005).

The World Health Organization has listed alcoholism as one of the three most deadly killer disease of the 20th century. Alcoholism is the leading cause of liver damage and also causes cancer, obesity, ulcers and irregular heart beat. Alcoholism is one of the serious social problems as well. It often brings with it poverty and certain amount of crime. It results in material unhappiness and broken homes.

In a study done by Yach and Joubert (1988) among people in Mamre, alcohol was reported to be a problem in 32 percent of households in which the head was an unskilled manual worker, as compared with 9.1 percent of households in which the head was a professional or a white collar worker. A positive association was found between alcohol being a problem in the household and the presence of a disabled person in the house, independent of employment status. In households where alcohol was reported to be a problem, respondents viewed their health as satisfactory or bad. On the other hand, in households where alcohol was not a problem, the respondents viewed their health as good or excellent.

There is universal agreement that a high consumption of alcohol is an important preventable cause of death. It is also well established that excessive alcohol consumption is associated with high blood pressure. Though alcohol consumption is related to an increase in mortality, certain studies raise the possibility that moderate alcohol consumption might be beneficial.
De Lorgeril et al, (2002) studied the effects of wine ethanol and the risk of recurrence in patients after a recent acute myocardial infarction. They concluded that moderate wine drinking was associated with a significant reduction in the risk of complications among the selected patients. But they also suggested further studies to confirm the data, and also define the clinical and biological profile of the patients who would benefit most from wine drinking after a recent acute myocardial infarction, and also examine whether the relations found were due to ethanol or other wine ingredients. Furthermore, alcohol has such complex clinical and metabolic effects. The social and medical implications of excessive alcohol consumption, may prove harmful in AMI case as well that is why it is advised that patients do not drink alcohol as a preventive measure.

There is an age-old expression that people are what they eat. Modern research has consistently supported the idea that the health of people’s bodies is largely determined by what they choose to eat. On one hand, certain vitamins and minerals have been shown to be helpful to heart health, particularly when they are consumed as a part of heart healthy diet. On the other hand, fats and oils such as saturated fat and tropical oils (palm oil and coconut oil) have been shown to be particularly harmful because they can speed up the development of diseases and conditions such as coronary artery disease and obesity (Isser et al, 2001).

During the last three decades, increases in urbanization, and the availability of cafeteria or hotel – based meals in the cities and towns, explains the dramatic changes in the long – standing cultural dietary habits. Tea, coffee, soft drinks, and snacks are now also consumed widely among both the middle – income and the poorer segments of the population. Smoking and alcohol consumption have increased in many population groups. Physical exercise has decreased among the urban populations, contributing to obesity.
The World Health organization estimates that by the year 2015, deaths due to heart disease will double in India, and by the year 2025, India will have 57 million diabetic patients – the highest number for any country. Studies suggest that those people, who follow the Mediterranean diet, which is high in fiber and low in fat, tend to live long lives and have lower than average rates of heart disease. The diet’s magic ingredient as proposed by Spanish researchers Martinez–Gonzalez *et al.*, (2002) is lots and lots of fiber. A study conducted in India suggests that a Mediterranean–type diet rich in fruits, vegetables, nuts, whole grains and certain oils can reduce the risk of heart attack and death in people who already have heart disease. Such a diet may be more helpful in reducing heart problems than diets that focus solely on cutting saturated fat and cholesterol (Singh, 2002).

Food records, food recalls, and food–frequency reports, all have been used historically to assess dietary intake. Patients attending cardiac rehabilitation programmes, tend to be more motivated to make dietary changes and more educated about dietary recommendations, especially fat intake, than the general population. Thus, it is essential to have a tool, which effectively quantifies both the amount and types of food consumed (Francis and Eckel, 2002).

One inherent problem with the present dietary assessment instruments is the underreporting of food intake by research subjects (Schaefer *et al.*, [from the internet]). Dietary assessment tools are most effective when they qualify both the amount and types of food consumed. In cardiac rehabilitation, use of the American Heart Association (AHA) dietary guidelines, seems prudent. These guidelines encourage individuals to maintain a healthy weight and to limit their intake of foods high in saturated fat and cholesterol by replacing them with grains, unsaturated fats from vegetables, legumes, nuts and fish (Krauss *et al.*, 2000).

After a myocardial infarction, patients often make a change in their dietary habits. Koikkalainen *et al.*, (2002), studied the changes patients make
in eating and weight control habits after a myocardial infarction. Nearly all patients (96%) had changed their habits after a myocardial infarction. Majority of patients (76%) reported that they had consumed foods containing less fat and many of them anticipated difficulties to eat healthily at workplace.

Dietary habits are implicated in coronary artery disease, and the traditional Mediterranean diet is thought to be cardio-protective. However, the exact mechanisms of this protection are unknown. De Lorgeril et al (1996) studied the effects of this type of diet on cardiac patients. Their study showed a definite protective effect of the Mediterranean diet. According to them, it was likely that certain nutrients characteristic of the Mediterranean diet (omega-3 fatty acids, antioxidant vitamins) have specific cardio-protective effects.

Erkilla et al, (1999) associated nutrient intake of cardiac patients with their education. They found that the educational level of men with coronary artery disease influenced their nutrient intake and food consumption, but in women with coronary artery disease, its impact seemed to be weaker. Men with a low level of schooling had a higher intake of total and saturated fat, a lower consumption of vegetables and fruits, more frequently used butter or butter based spread and less frequently used oil compared to the diets of men with middle or high education. Men with a low or middle education level had a lower intake of alcohol than men with a high level of education. Levels of "good" (high density lipoprotein) cholesterol increase with income and education even after controlling for factors known to place people at risk of high cholesterol (Muennig, Sohler and Mahato, 2007).

Education of patients and their partners about appropriate lifestyle changes following myocardial infarction is a key element in rehabilitation. Developing relevant educational strategies requires knowledge about patients' beliefs and attitudes. Newens, Coll and Bond, (1997) reported findings from a survey of diet and exercise in a group of 153, middle-aged men who had suffered a first uncomplicated myocardial infarction. Just over half of those questioned, expressed a desire to change their diet post myocardial infarction.
Those who perceived their pre-morbid diet to be “less healthy” were more likely to want to change. Significant changes in food consumption (towards a more healthy diet) were observed at three months post myocardial infarction. Patients were less likely to change their behaviour with respect to exercise, and few attained recommended levels of physical activity post myocardial infarction.

Unhealthy and high fat diet leads to accumulation of fat deposits in the arteries. This then leads to high blood cholesterol levels. The risk of developing coronary artery disease in individuals with high cholesterol at least doubles when compared with levels less than 200 mg/dl established (Julien, 1995; Kasiwal, 1993; Hurst, 1990; Gotto and Farmer, 1988; Anderson, Castelli and Levy, 1987; Hopkins and Wiliams, 1986; Blocker, 1986; Paul, 1985). The most important dietary component leading to hypercholesterolemia is saturated fat, which is converted into cholesterol after absorption.

The risk of developing coronary artery disease in individuals with high cholesterol at least doubles when compared with levels less than 200mg/dl (British Heart Foundation, 1994; Shaper et al, 1985). The main risk of coronary disease relates to high levels of low-density lipoprotein (LDL); by contrast, high-density lipoprotein (HDL) appears to be protective.

Hypertension can lead to thickening and loss of elasticity and flexibility of arterial walls. It also weakens the arteries (Stamler, Stamler and Liv, 1985; Wenger and Schlant, 1994; Chobanian, 1983). The relation of hypertension with coronary artery disease is well established. The incidence of cardiovascular disease increases progressively as systolic and diastolic blood pressure increases (Julien, 1995; Kasiwal, 1993; Hurst, 1990; Gotto and Farmer, 1988; Hopkins and Wiliams, 1986; Blocker, 1986; Paul, 1985; Jenkins et al, 1985). The risk increases if hypertension is present along with other risk factors, such as hypercholesterolemia, smoking, sedentary lifestyle, diabetes, obesity (Chadha et al, 1993; Kasiwal, 1993; Miller et al, 1990; Gotto and Farmer, 1988).
Obesity, another risk factor for heart disease, defined as the excessive storage of energy in the form of fat, has adverse effects on health (National Institute of Health 1985). Obesity, or being extremely overweight, causes the heart to work harder to pump blood throughout the body. Many factors contribute to obesity, including genetics, environment, nutrition and levels of physical activity. Although heredity does seem to play a significant role in weight, heredity alone does not provide a plausible explanation for the recent surge in obesity prevalence (Rippe, Crossley and Ringer, 1998).

Studies have shown that excessive food intake also contributes importantly to the development of obesity (Bandini et al, 1990). There is a strong association between being overweight and the risk of developing coronary artery disease (Ridker, Jacques and Libby, 2001; Canto et al, 2000; Wenger, 2001). Obesity increases strain on the heart and appears to accentuate atherosclerosis by predisposing to hypertension, diabetes and high cholesterol. It may also further lessen physical activity. Obesity is determined by measurement of body fat, not merely body weight. Fat deposits, especially around the abdomen area (abdominal obesity or the “beer belly”), are probably an important independent risk factor for developing coronary artery disease (Canto JG et al 2000).

The experience of stress can alter the person’s emotional state, the way they think and behave, and can also produce changes in their physiological function (Cincirpini et al, 1984; Stainbrook and Green, 1983.) Many of the changes simply represent a modest dysfunction and possibly some associated discomfort. Many are easily reversible, although still damaging to the quality of life at the time. However, for some, and under some circumstances, they might translate into poor physical health. Overall, however, the strength of the relationship between the experience of stress and its antecedents on one hand, and health status on the other, is consistent but only moderate (Baker, 1985; Kasl, 1984; Kasl, 1980). Although a considerable variety of different physical pathologies have been associated
with the experience of stress, there is still a need for further research to refine this relationship.

Beliefs and behaviour change were only weakly associated with receipt of information and advice. What people believe about their illness may effect how they cope with it. It has been suggested that such beliefs stem from those commonly held within society (Furze et al, 2002). The underlying assumption of many practitioners is that perceptions of illness causation will influence emotions and adjustment to illness (King, 2002). Behaviour, stress, anxiety, depression and life events have all been found to play a part in coronary disease. They may be partly responsible for causing the disease, they may aggravate its symptoms, they may accelerate its progression and they may worsen its prognosis. In addition, the results of excessive stress and of anxiety and depression are unpleasant for the patient and retard his recovery (Hugh and Bethell, 1995).

It seems that what patients believe about the cause of myocardial infarction has an important bearing on eventual rehabilitation status. Patients' willingness to undertake secondary preventive strategies following heart attack are likely to be affected by their understandings of their condition. In a study by King (2002), to examine perceptions of illness causation, 24 men and women admitted with a provisional diagnosis of myocardial infarction were interviewed shortly after hospitalization about the perceived cause of their myocardial infarction. Stress was the most commonly cited cause of illness. Men and women demonstrated distinct differences in illness attribution. Patients who verbalized concerns about their loss of autonomy and their subsequent ability of self – management were predominantly female and uniformly belonged to a lower socio – economic group.

A qualitative study by Wiles and Kinmoth (2001), explored patient’s understandings of heart attack in order to contribute to the effective secondary prevention services design. Interviews were held with a total of 25 patients with myocardial infarction who initially viewed their heart attack as a symptom
of chronic condition, which does not motivate them enough for a long-term lifestyle change. Patients may benefit from understanding a heart attack as an acute symptom of an underlying disease process, which long-term medication and behavioural change can help to check. This can be achieved through information from health professionals who can encourage patients to view their heart attack as an acute event and bring about necessary lifestyle changes.

In a study in Greeks by Sidiropoulos and Muthny (2000), 100 people were asked about the causes of myocardial infarction and cancer. Most of them thought of cancer as a disease with somatic causes while myocardial infarction was more often, held to be psychologically evoked. Main causal attributions were - unhealthy way of life, pollution and predisposition. Negative environmental factors were thought of as the leading cause of myocardial infarction. However, both the diseases were believed to be very dangerous but according to the people questioned, myocardial infarction carried better chances of prevention and therapy as compared to cancer. Education showed a significant relation to stronger internal and less fatalistic orientation.

In a survey by Fielding (1987), 102 post myocardial infarction patients were asked to list the factors that they believed had ‘caused their heart attacks’ in order to rate how controllable each of those causes would be. Eight percent of patients gave stress, worry, overwork, or smoking as the primary cause. This was a particularly startling finding as these patients had all been counseled about the ‘official’ risk factors, of smoking, hypertension, high cholesterol levels, diet, sedentary lifestyle etc. in ‘educational sessions’ that were part of their rehabilitation programme. Although these ‘official’ risk factors were mentioned by many patients, they were all (except smoking) perceived to be less important and much more controllable than the psychological or behavioural factors. A similar study by Zerwic, King and Wlasowicz (1997) and Murray (1989), confirmed these findings.
In a study carried out way back in 1978 by Koslowsky, Croog and La Voie 1978, in a patient population of 345 men who were previously free from significant medical problems, the perceived causes of myocardial infarction were asked. Investigation of their perceptions following life threatening illness crisis indicated that stress and tension factors were the causes most commonly cited. Similar causes were expressed by male patients hospitalized after their first myocardial infarction in a study done by Bar – On D et al, in 1994.

Myocardial infarction patients often give idiosyncratic, very personal attribution, which is often not in accordance with the physician’s view (ten Kroode, Oosterwijk and Steverink, 1989). Billing, Bar-On D and Rehnqvist (1997), carried on a study to determine the groups’ perception of the causes of the patient’s myocardial infarction and the importance of these for patient outcome six months later after an AMI. Patients and their spouses attributed the myocardial infarction to similar social and psychological causes instead of attributing it to smoking, hypertension etc.

These cardiac misconceptions and patients’ beliefs about the causes of myocardial infarction are socially normative and in many cases they are, reinforced by the patient’s family, friends and the media. A myocardial infarction may activate strong feelings of guilt and blame in the families. In an American study of male myocardial infarction patients (Croog and Levine, 1977), Croog and Levine reported that one fifth of the married patients attributed the onset of the heart attack to problems with their wives. A similar study done by Arefjord et al, (2002), addresses lay illness understanding and attributions including attribution of blame, in wives of myocardial infarction patients.

Because of lack of knowledge, after a myocardial infarction most patients are cautious about physical exertion and reduce it. Patients and their families often interpret this decline in physical fitness as evidence of a further deterioration of the heart. This leads to increased anxiety and an increase in
resting time, leading to steadily increasing disability (Lewin, 1995). The relationship between medical patients’ illness perceptions and their coping behaviour is complex and, insufficiently understood (Cohen and Lazarus, 1980). Experimental studies have found patient education in cardiac disease to enhance health knowledge (Plach, Wierenga and Heidrich, 1996; Milazzo, 1980; Rahe, Scalzi and Shine, 1975).

Traditionally, the functioning of the heart has been equated with life itself. Because of this special association, a serious disruption of cardiovascular functions can pose a significant threat emotionally as well as physically. The reciprocal impact of the emotional state on the cardiovascular system adds yet another dimension to complicate the problem (Moos, 1977). Patients’ understanding of the disease often depends on factual knowledge as well as on subjective beliefs and personal interpretations (Maeland and Havik, 1987).

Though an increase in knowledge may not necessarily lead to improved health behaviour, but available evidence confirms that education, counseling and behavioural interventions increase patient knowledge and enhance their psychosocial functioning (Maeland and Havik, 1989). Inadequate understanding of the disease, its causation and its likely outcome may cause unwarranted emotional distress, inappropriate coping behaviour, non-compliance with medical advice, and unnecessary invalidism (Wenger, 1975). However, the relationship between medical patients’ illness perceptions and their coping behaviour is complex and, at present, insufficiently understood (Cohen and Lazarus, 1980). In some patients, poor adjustment may be related to misperceptions about heart disease (Goble and Worcester, 1999).

While increased knowledge may not lead to favourable behaviour change, it can decrease anxiety and give patients greater sense of control over this progress. Experimental studies have found patient education in cardiac disease to enhance health knowledge (Plach, Wierenga and Heidrich,
1996; Milazzo, 1980; Rahe, Scalzi and Shine, 1975). Further, favourable effects have been demonstrated upon reduction of smoking, lipid levels and stress.

The benefits of a short comprehensive educational programme on outpatient basis were seen in a study by Song and Lee, (2001). Kamwendo, Hansson and Hjerpe (1998), found a significant increase in improved behaviours in subjects two years after cardiac rehabilitation. Effective educational interventions have the potential to reduce hospital readmissions and increased costs of disease treatment. Plach, Wierenga and Heidrich (1996), found knowledge of CAD and its risk factors to be higher in post–catheterization patients who attended a single two hour post discharge education class. These findings lend support to the positive role of patient education found in other CAD populations (Garding, Kerr and Bay, 1988; Raleigh and Odotohan, 1987; Mills et al, 1985). By educating patients, health care professionals can contribute to improving symptoms and quality of life of respiratory disease patients as was found in a study by Giner, Macian and Hernandez (2002). Education and cognitive behavioural therapy has been found to be helpful in lending support and helping patients cope effectively with sickle cell disease by improving their knowledge and attitudes (Anie and Green, 2002).

Patients’ willingness to undertake secondary preventive strategies following heart attack are likely to be affected by their understanding of their condition. Incorrect understanding of their disease does not motivate them enough to make long–term lifestyle changes considered beneficial for their disease. Thus, it is essential to examine the patients’ understanding of their heart attack and recovery in order to provide them with information about beneficial lifestyle changes (Wiles and Kinmoth, 2001). Mostly the education provided to the patients is based upon the health care providers’ perception of the patients’ educational needs (Wang, 1994).
An individual’s perception of his own health is by far the most powerful predictor of post – myocardial infarction morale and rehabilitation. Little room for improvement in attitude and morale with treatment was found for patients who reported that they perceived their health following myocardial infarction as good, and the potential for recovery as excellent. Thus, more intensive education and counseling programmes should be directed towards patients with a negative attitude towards future (Horlick et al, 1984).

Patients often get trapped in the cycle of fear, depression and panic that frequently accompanies a supposedly incurable illness (Cousins, 1981). Though managing a long-term illness can bring emotional upheaval; it also brings the triumphant feelings and strength that comes with overcoming obstacles (Liz). But on the other hand, a sudden onset of a life threatening disease – a major crisis of life, which activates one’s psychological resources of coping, may just make a person feel helpless. Patients have been found to differ widely in their reactions to the sudden onset of Myocardial Infarction. Some patients show an intense sense of helplessness and anxiety, whereas others take much less time in recovering and returning to normal life routine (Ruberman, Weinblat, Goldberg and Chaudhary, 1984). Health is also determined by the degree of control one perceives one has over one’s health within this environmental and cultural framework (Marteau, 1995).

Psychologically, healthy people believe that they are able to exert considerable personal control over most aspects of life that are seen as important to their happiness and sense of well – being. Psychologists refer to this as having an “internal” as opposed to “external” locus of control (Hanson). Through a learning process, individuals develop the belief that certain outcomes are a result of their action (internals) or a result of other forces independent of themselves (externals) (Kelli, 1999). Its theoretical basis relies on individual differences between how people perceive events: as a result of “their own behaviour or enduring characteristics” (internal), or as being controlled by “some other variable like chance, God or an authority” (external).
Someone with an external locus of control believes that luck; fate or others are responsible for the outcome of events (Lathrop 1998).

It is the personality variable indicating whether an individual is primarily oriented to perceive the outcome of events as a result of his own control, as opposed to attributing them to fate or control by other individuals or external circumstances (Cromwell and Butterfield, 1977).

A person with an internal locus of control will feel that he or she can make a difference in a situation where help is needed, therefore implying responsibility. Such people have a sense of responsibility for their own health (Lathrop, 1998; Wallston and Wallston, 1982). They appear more likely to engage in positive health and sick role behaviours (Brown, 1999). Internal locus of control has also been seen as a mediating factor of actions taken to prevent health problems. In contrast, external locus of control refers to the perception of positive or negative events as being unrelated to one’s own behaviour in certain situations and thereby beyond personal control. It is the expectation that events that happen are outside of one’s control – dependent on the control of others or on chance, fate or luck (Brown, 1999; Hanson [from the internet]). Men with myocardial infarction were found to have reported a significantly stronger external health locus of control (i.e. a weak belief in their capacity to control their health) compared with their controls. Both men and women patients reported more problems with their sleep. The importance of health locus of control, sleep problems and alcohol consumption has been amplified by the fact that they are related to myocardial infarction independently of conventional biomedical risk factors (Welin, Rosengren and Wilhelmson, 1995).

The role of psychosocial factors in recognizing acute myocardial infarction was studied by Theisen et al, (1995). Patients with unrecognized acute myocardial infarction had a greater belief that chance factors determine their health. Psychosocial factors have also been found to affect adaptation to a myocardial infarction. Terry (1992), found evidence to suggest that
adaptation to an infarct was facilitated if subjects had internal control beliefs, high self-esteem, low trait anxiety and high-quality family relations. Marital quality was found to be unrelated to the measures of adaptation.

To adapt psychologically to the drastically changed life conditions and the induced existential anxiety, patients use different psychological defense mechanisms. Their establishment, retention and changeability depend on the pre-morbid personality and the degree of somatic damage (Ilic, Milic and Stefanovic, 1997).

When illness intervenes, all past efforts to achieve certain goals may seem irrelevant – and in fact they may be. In the face of such losses, it is normal to experience fear, anger, depression, anxiety and denial. (LeMaistre, 1999). Denial is the psychological process by which human beings protect themselves from things which threaten them by blocking knowledge of those things from their awareness. It is a defense that distorts reality; it keeps us from feeling the pain and uncomfortable truth about things we do not want to face. Denial is an unconscious process used by the patient. Denial comes in many forms. As an individual, one has denial about something – his or her relationships, behaviour, health, family etc. We all want everything to “be fine”. We have denial to keep us from pain (Lenzi, 2001). Although denial is a distortion, it is a defense mechanism that serves the purpose of protecting the self from the shock of the loss (Facklam and Robinson, 1993). Denying anxiety-provoking stimuli allows patients to maintain hope and resilience, because they block out information with which they cannot cope (Handron, 1993; Druss and Douglas, 1988). It is important that patients come to terms with their illness in their own way. Denial can provide a protective safeguard until patients gain the strength to cope with ill health, but it can also be detrimental in pursuing timely treatment. (Stewart, Gomez and Tesol from the internet; Bove and La Bier). It can block the process of coming to terms with and adapting to the illness. Denial may prevent seeking proper medical attention and adherence to medical interventions. The patient may also fail to
realize the long-term effects of the disability (disease). Depending upon the disability, denial may be destructive to the denier. (Lazarus and Folkman, 1984). Problems arise if the denial persists because it can lead to non-adherence during rehabilitation. It can just as easily contribute to the most disastrous outcomes when it prevents an individual from taking appropriate adaptive action, such as delay in seeking medical care or treatment. (Johnson and King, 1995; Gentry, 1978).

Although it is generally accepted that denial can influence recovery, its impact on all aspects of the recovery process is not completely understood. Studies of denial before hospitalization have demonstrate that high level of denial can have negative effects by leading to a delay in seeking treatment (Gentry, 1978), whereas denial may be beneficial during hospitalization resulting in reduced morbidity and mortality ion a coronary care unit (Cromwell, 1977; Gentry, Foster and Haney, 1972; Hackett, Cassem and Wishnie, 1968). Studies of effect of denial on recovery have produced inconsistent findings. Some found a negative relationship between denial and compliance with medical regimen (Croog, Shapiro and Levine, 1971) whereas others have found no such relationship (Soloff, 1980). Few studies have shown that deniers have a higher rate of return to work and show less anxiety, depression, mood disturbance and physical disability than non-deniers (Stern, Pascale and Ackerman, 1977; Stern, Pascale and Mc Loone, 1976).

The way a person is brought up, through the situations he encounters, and the views that he is exposed to are key factors in the development of attitudes and beliefs. This is why cultural differences exist in the perceived risk of health problems and also in one’s likelihood to self-enhance his situation (Magnuson, 1996).

The concept of quality of life (QOL) is used to determine clinically relevant aspects of subjective symptoms and well-being (Jern, 1989; Waltz, 1986). QOL after an AMI depends upon the physiological and medical limitations imposed by the AMI, and on the psychological problems of
accommodating to a chronic illness and holding it in perspective in subsequent life (Wishnie, Hackett and Cassem, 1971). Impact of illness in terms of physical, social and psychological well-being and health seeking behaviour of patients after AMI has been found to be rather severe for the patient’s emotional and social life (Waltz, 1986). It is thus important to gather information on QOL post AMI, compare it with his pre morbid life and thus, serve it as a basis for patient education and eventual rehabilitation.

Family interaction has been found to be an important and basic factor in determining quality of life of patients (Invernizzi et al, 1991) as survivors of AMI and their families are forced to make significant social and psychological adjustments. The interpersonal relationship of people and elements of the self-concept appear to be salient factors in causal modes of subjective well-being (Waltz, 1986). The patient is not the only victim -- families suffer as well. The spouse and other members of the family may become overly solicitous towards the patient (Cole, Levin and Holcomb, 1978; Rahe, Tiffli, Suckor and Arthur, 1973; as cited by Mc Lane, Krop and Mehta, 1980).

There is no evidence that prolonged convalescence improves the patient’s physical state or his prognosis and psychologically more harm may be done as the longer the patient regards himself or is treated by his family as an invalid, the harder it is for him to return to an active life (Cay et al, 1973). Family interaction has been found to be a basic factor in determining the quality of life of patients undergoing heart surgery. Care and warmth given to the patients post AMI results in lesser anxiety and depression and a better illness outcome (Invernizzi et al, 1991). It has been noted that cardiac patients experience a distinct deterioration in the quality of their lives as a result of the disease. The reactions from the social environment are judges by the patients vaguely and without uniformity (Egger, 1981). In a study of post myocardial infraction patients by Hsi, Chen and Lee (1990), physical limitations or discomfort were not significant for the patients but impacts on their emotional and social life were found to be rather severe.
Social maladjustment was measured in terms of sexual life of the patient, return to work, social participation and their interest in leisure activities. Deterioration was noted in all these spheres. Physical morbidity was not the only determinant of maladaptation. Various socio-demographic and psychological factors appeared to be salient factors for coping (Taylor, 1987). A wide reaching impact on the total life space of the individual and his family has been noted after myocardial infraction and other serious illness (Waltz Lazarus, 1980). Cardiac and other disease frequently lead to a sharp increase in dysphoric emotions related to the threat and symbolic losses of illness. They may also reduce the pre-illness life space of the individual to such an extent that the opportunities for daily uplifts and self-gratification are severely curtailed (Moss, 1979; Strauss and Glaser, 1975). On the other hand, with properly guided rehabilitation programme encouraging patient participation in treatment post infraction, the quality of life can significantly be improved (Folik et al, 1988).

After a myocardial infraction, most patients divert a great deal more attention to how they feel. The patient’s psychological representation, that is, the perception, understanding, and evaluation, of his or her illness has a dominant position in contemporary models on coping with the stresses of a major somatic illness (Havik and Maeland, 1987). He is faced with a number of challenges demanding major psychological and behavioural adjustments (Kantz, 1980).

Anxiety and depression are important complications after acute myocardial infraction (Hackett, 1985; Cassem and Hackett, 1971). It has generally been recognized that the experience of having an acute myocardial infraction and of being hospitalized in a coronary acre unit elicits at least short-term emotional distress. Symptoms of anxiety during the first few days tend to be followed by several days of depressed mood (Hackett, 1985; Lloyd and Cawley, 1978). A number of investigators have reported that approximately two-thirds of patients with myocardial infraction have some
mental disorder, primarily depression and anxiety states (Kurosawa et al, 1983; Lloyd and Cawley, 1978; Cay et al, 1972). Schleifer et al, (1989) found an incidence of 45% and Lloyd and Cawley (1978) of 35% of patients requiring some form of psychiatric help for depression or anxiety. These psychiatric illnesses are usually mild and rarely acquire psychotic proportion.

Physical rehabilitation has occupied the center–stage of these rehabilitation programmes (Goble and Worcester, 1999; Lewin 1995; Hellerstein, 1979). It is assumed that optimum physical rehabilitation shall logically translate into vocational and psycho–social rehabilitation (Lewin, 1995; Kellerman, 1975). Unfortunately, experience from clinical and population studies, has belied this hope (Fisher, 1970). This is obvious most prominently from observation after bypass surgery (Mayou and Bryant, 1987; Oberman and Kouchoukos, 1979). Bypass surgery corrects the basic physiological abnormality in patients with coronary artery disease by restoring blood supply to the ischemic myocardium i. e. damaged myocardium.

Results from studies have shown that many patients after successful bypass surgery either do not return to work, change their jobs or return only to seek retirement. Moreover, there may be a qualitative change in the work output of these patients. The exact incidence of patients not returning to work has been variably found to be 10 – 30 % in different studies from the western countries (Stanton et al, 1983; Barnes et al, 1977). Many of these patients not returning to work may have no residual ischemia or left ventricular dysfunction. Therefore, physical disability does not directly correlate with vocational rehabilitation. Similar experience has been gained from study of patients after an acute myocardial infarction (Goble and Worcester, 1999; Nitter et al, 1977; Cay et al, 1973; Nagle, Gangola and Picton–Robinson, 1971).

The well-being of patients with heart disease, particularly those who become unemployed as a consequence of their illness, has been a concern of medical and other health professionals throughout the twentieth century.
However, during the past fifty years, it has been gradually recognized that disability could be controlled or avoided, that retirement was often unnecessary and that patients could live for many years after their acute events. A distinct change in attitude developed with the introduction of formal programmes of cardiac rehabilitation to facilitate and support recovery of patients and to prevent further episodes. Vocational rehabilitation is an important goal of management of patients with coronary artery disease. Failure to achieve this goal not only means an economic loss to the individual and society but also leads to psycho-social conflicts. If predictors of this work disability could be identified, efforts could be directed more energetically to prevent it (Hsi, Chen and Lee, 1990). As established by other studies, traditional medical factors, such as severity of illness, have a relatively small impact upon the outcomes. Barriers to resuming work may be more cognitive than physiological (Rost and Smith, 1992; Hlatky et al, 1986). In the USA and Canada, resumption of work has been considered largely dependent upon social, economic and occupational factors (Oldridge et al, 1991; Dennis et al, 1988).

Several observers have investigated severity of disease as a determinant of work disability. Some have found lower rates of employment among patients who have suffered a myocardial infarction with complications as compared with those with an uncomplicated infarction (Nagle, Gangola and Picton-Robinson, 1971), and in patients who have had more than one infarction. Patients who are not working show lower average exercise capacity than working men (Nitter-Hauge et al, 1978). If symptoms of angina or congestive heart failure are present after myocardial infarction (Kushnir et al, 1976) or bypass surgery, patients are much less likely to return to work. Other studies, however, have found little or no correlation between medical factors and employment status. Finally, bypass surgery is not successful in increasing the employment among patients with coronary artery disease (Barnes et al, 1977).
Age is an important determinant of return to work after a myocardial infarction. Younger patients generally tend to return to work to a higher proportion than do their elderly counterparts (Kjoller, 1976; Croog et al, 1968; Weinblatt et al, 1966). Level of education has been consistently related to work disability (Barnes et al, 1977; Fisher, 1970), but the reason for this association is not certain. Low education attainment is correlated with more menial and physically demanding jobs, which may exceed the patients’ limited exercise capacity. Available data shows that white-collar workers are more likely to continue working than are blue-collar workers (Kjoller, 1976). This finding may be due to increased demands of blue-collar jobs. Blue and white-collar jobs, however, also differ in the level of control over the pace of work, psychological stress on the job and employer attitude (Reeder, 1965). Place of residence, rural or urban may also affect return to work. It is not clear, whether this is an independent variable or reflects education level, understanding of the disease or other psychological factors. One further variable has frequently been mentioned as a predictor of return to work namely the pre-illness work status. Safilios-Rothschild’s review (1970) indicated that those who worked consistently before the illness were most likely to return to work afterwards.

The central role of patients’ expectations concerning work resumption has also been demonstrated in other studies. Croog and Levine (1977), found that over 2/3 of patients who initially expected future work problems, in fact reported such difficulties to have occurred one year later. Mayou (1979) reported early expectation about work to be related to changes in work problems have been found to be unrelated to the severity of myocardial infarction and may also predict actual work return independently of social and work related factors (Stanton et al, 1983). Anxiety and depression may be important factors in determining return to work. Nagle, Gangola and Picton-Robinson (1971) found this be the commonest cause of persistent invalidism.
Hlatky et al. (1986) in a cross-sectional study of 816 patients with coronary artery disease found that patients who are not working had a higher level of anxiety, depression and hypochondriasis. Depression and anxiety were booked higher when measured with the Zung self-rating method or MMPI. In addition, disabled patients had significantly lower ego strength and poor work attitude than non-disable patients. Tuttle, Cook and Fitch (1964) found similar results in their study.

Satisfactory psychosexual relationship is an important component of marital life. It is expected that most patients on recovery from an acute myocardial infarction will resume normal sexual activity within the limit of their physical disability. Advice to patients about sex is either completely lacking or sketchy (Tuttle, Cook and Fitch, 1964). Sex involves in addition to physical effort, psychological and motional components also. Most experts agree that there are few if any physiological reasons for the cardiac patient not to achieve sexual satisfaction (Bakker, Bogdonoff and Hellerstein, 1971). Douglas and Wilkes (1975) gave support to this idea by using a measure of oxygen consumption. They found that the average energy cost for foreplay was 3.5 METS and for orgasm in the range of 4.7 to 5.5 METS. Since most patients after an acute myocardial infarction are able to perform 8 to 9 METS, they concluded that asexual activity is well within the capacity of most cardiac patients. Hellerstein and Friedman (1969) have shown that the average expenditure of energy in sexual intercourse is about 3.7 METS. They compared the average heart rate achieved during orgasm to that for most occupational activities and found that the maximal heart rate achieved during orgasm (mean 117 beats/min) was similar to that achieved during other occupational activities (120 beats/min). Nemec, Mansfield and Kennedy (1976) have also reported an average heart rate during orgasm of 114 ± 14 beats/min for the female superior position.

Unfortunately, there is significant quantitative and qualitative change in the sexual function of most patients after an acute myocardial infarction. One
study showed a 58% decrease in sexual activity in patients who had suffered a coronary event. In the six months follow-up period, a decline in frequency of orgasm from 2.1 to 1.6 per week was noted (Hellerstein and Friedman, 1969). Similar findings were described by Bloch and Maeder (1973). In a retrospective study 43% of patients had decreased frequency of or abstinence. Johnson et al (1978) found a significant decrease in absolute frequency from 6.5 to 4.5 times per month before and after the cardiac events. In another study (Skelton and Dominian, 1973) in similar patients 26% of 38 couples were having sexual intercourse less frequently 3 months after myocardial infraction. Klein et al (1965) reported that 15 out of 20 patients with a myocardial infraction claimed either abstinence or diminished sexual activity.

In addition to a decrease in frequency, a serious decline in the quality of sexual activity is often seen in patients with myocardial infraction. The commonest problems reported by male patients are decreased sexual desire and impotence (Mehta and Krop, 1979; Tuttle, Cook and Fitch, 1964). In a study by Mehta and Krop (1979), it was found that 37% of patients had premature ejaculation, 54% manifested retarded ejaculation and 60% had erectile difficulties at least half of the time.

In another study, Amsterdam et al (1977) studied retrospectively the resumption of sexual activity after acute myocardial infraction in 107 males who were cared by 58 referring physicians. Although 80% received counseling from the physician while in hospital about return to physical activity, physicians discussed resumption of sexual activity with only 40% patients. Moreover, 54% of these patients initiated the topic. Of these patients 53% resumed sexual intercourse at the same frequency as before, 43% decreased frequency or abstained. On resuming sex, 16% had angina, 32% dyspnoea (breathlessness) and 49% impotence. 43% patients reported fear that resumption of sexual activity would be deleterious to their condition. Authors concluded that infraction patients and emotional and physical
problems associated with sex are frequent in this group. Although these patients desire counseling, the physician does not adequately meet their needs in sexual counseling. Tuttle, Cook & Fitch (1964) questioned post myocardial infarction patients about their sexual activity. Two-thirds had received no advice regarding sexual activity. The remaining men had received vague and non-specific advice. A third of patients resumed their normal pattern of sexual activity. Two-thirds had a marked and lasting reduction in the frequency of intercourse. 10% of the men interviewed became permanently impotent. These patterns bore no relation to the age of the patients or the severity of the heart disease. Patients suggested that this change in behaviour was based on misinformation and fear.

Most patients suffering a myocardial infarction pass through states of denial, acceptance, anxiety and depression before they realistically adapt to their illness (McLane, Krop and Mehta, 1980). They experience a negative emotional and vocational response that may last many months or even up to years (Waltz, 1986; Bilodeau and Hackett, 1983; Mayou, 1979; Wishnie, Hackett and Cassem 1971; Adsett and Bruhn, 1968). Common responses include anxiety, depression, insomnia, fatigue, irritability, change in concentration, decreased self-esteem, and changes in sexual drive and performance (Mayou, 1979; Doerhman, 1977).

Patients express fears of recurrence and death, changes in self-concept, and symbolic losses associated with heart disease. A significant number of people fail to return to work when physiologically capable of doing so (Robinson, 1999; Shanfield, 1990).

Biomedical and psychosocial variables are interrelated at many levels in the recovery process. It is of considerable practical importance to recognise the patients’ coping ability, in order to obtain effective comprehensive care (Hsi, Chen and Lee, 1990). Management of post-myocardial infarction patients thus aims at system control, improvement of effort tolerance, improvement in long-term survival, improvement quality of life and optimum
vocational, social, emotional and marital rehabilitation (Mclane, Krop and Mehta, 1980).

A sample of 37 wives were interviewed during the acute phase of the illness, three months and 10 years post-index MI. Attributions of the MI to multiple causes were common with an strong emphasis on psychosocial risk factors, but attributional content showed a low consistency over time. In retrospect, the wives believed they could have done more to prevent the MI, but self-blame was not a significant issue. However, they blamed the patient for not taking preventive actions. Attributions were not related to background and illness characteristics or denial in any strong and consistent manner. In a short-term perspective, attributing the MI to stress causes and husbands’ personality was associated with worse emotional adjustment. Also, the use of magical explanations and blame of the patient were related to a poorer emotional outcome for the wife. The causal attributions made by the wives during the acute phase did not influence the emotional adjustment after 10 years (Arefjord et al, 2002)

After an extensive review of the literature available from research studies, it can be seen that a larger number of studies have been carried on return to work and its predictor after acute myocardial infarction. The patients’ adjustment in his complete social set up i.e. with spouse, family and friends has largely been ignored even in the western world.

A few studies related to the problems of rehabilitation of patient undergoing cardiac surgery (Wahi et al, 1976; Wahi and Wig, 1969) and antecedents of myocardial infarction (Gupta and Verma RK, 1983) have been done in our country. Very few studies in India related to the overall adjustment of patients after acute myocardial infarction are available. The present study is an attempt to understand and analyze some of the unexplored aspects, which relate to AMI. Thus it includes the causes – both medical and perceived by the individual; their awareness, knowledge and attitude towards the disease and
the expectations of recovery; the changes in quality of life and the process of rehabilitation.

**Objectives of the Study**

Most patients suffering an acute myocardial infarction pass through states of denial, anxiety and depression before realistically adapting to the illness. The socio demographic and psychosocial factors which may be of paramount importance in determining quality of life, return to work and sexual rehabilitation are qualitatively different in our country than in the Western world. It is logical to expect that because of these differences, the incidence of adjustment and rehabilitation would be different in our set-up. Moreover, factors determining rehabilitation or lack of it would also be different. It is a matter of conjecture whether these differences affect quality of life adversely or otherwise. Keeping this in mind, the present study was undertaken to:

1. Assess the socio-demographic profile of the respondents suffering from an acute myocardial infarction.
2. Understand the doctor's diagnosis ascertaining the cause of heart attack and also the cause of myocardial infraction as perceived by the respondent.
3. Determine into the respondents' level of awareness regarding heart disease and their attitude and expectations thereof.
4. Discern the process of rehabilitation -- quality of life adjustments made by the respondents after an acute myocardial infraction.
5. Look into the return to work pattern of the respondents after an acute myocardial infraction.
6. Establish the incidence and factors predicting psychosexual behaviour patterns of the respondents after AMI.
7. Another important objective of this study is to indicate which variables are most powerful in determining quality of life, vocational and psychosexual adjustment after a myocardial infraction.
Since no study has been available in India which determines the incidence of return to work, quality of life and psychosexual abnormalities and the factors predicting such alterations collectively, the need of such a study that would provide the social worker, physician and nurse with a basis to help the patient and guide rehabilitation programme more effectively was felt.